TESTIMONY ON BEHALF OF THE

UAV NATIONAL INDUSTRY TEAM "UNITE"

TO

THE HOUSE AVIATION SUBCOMMITTEE

TRANSPORTATION AND INFRASTRUCTURE COMMITTEE

MARCH 29, 2006

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Thank you for this opportunity to provide an industry perspective on the important issue of integrating unmanned aircraft systems (UAS) into the national airspace system (NAS). I speak today on behalf of the UAV National Industry Team (UNITE). UNITE is an industry alliance, comprised of six US-based UAS manufacturers, which has the primary goal of opening the NAS to safe and routine operations of unmanned systems.

When the first manned airplane took flight at Kitty Hawk just over a century ago, it would have been difficult for even the most imaginative futurist to predict the impact that manned aviation would have on military power, global economic growth, and human endeavor. Military operations in WWI served as the catalyst for maturing hobby-shop aircraft into useful ones. However, it was not until Lindbergh's trans-Atlantic flight that the full potential of manned aviation for civil applications and commercial commerce started to emerge.

Likewise, it took several decades of use in military operations for initially primitive UASs to come of age. Today, a variety of unmanned systems have become indispensable to commanders at all echelons in the performance of critical missions. The value of UASs in military operations is now undeniable and the trend toward greater reliance is irresistible. So, as we see history repeating itself, military operations have served as the crucible of maturation for UASs, as they did for manned aircraft. UASs are now on the threshold of unleashing the same influence in civil and commercial markets that manned aviation exerted 80 years ago.

For example, it is quite easy to envision a future in which UASs, unaffected by pilot fatigue, provide 24/7 border and port surveillance to protect against terrorist intrusion. Envision a future in which UASs, without endangering pilots, safely operate closely to hazardous areas to provide improved warning and situational awareness of potential disasters. Or, in which UASs are deployed rapidly in disaster relief operations to fill communications needs while terrestrial systems are incapacitated. A future in which human knowledge of the earth and the atmosphere is expanded by means of UASs capable of operating in conditions too dangerous or too fatiguing for manned systems. Or, in which commercial space-based telecommunications are economically complemented by means of long endurance UASs operating in near-space, or new commercial vistas are opened by means of minimally manned operations made possible by UAS autonomous systems and technologies. Other examples are limited only by our imagination. Just as that imaginative futurist a century ago could not have foreseen the full potential of manned aviation, we know there is great potential for unmanned systems, but cannot predict with any accuracy how that potential will unfold.

However, we do know the potential cannot be unleashed until we first solve the challenge of operating UASs safely and routinely in the NAS. Currently, the FAA allows temporary and restricted operations of UASs in civil airspace through the COA process, or through an Experimental Certificate (EC), or by carving out Temporary Flight Restricted (TFR) corridors. The COAs and ECs impose procedural constraints, such as chase aircraft or ground observer who must be within visual range of the UAS and which negate the inherent advantages of unmanned systems. For the promise of UASs to be fulfilled, we must find a way to gain routine "file and fly" access to the NAS, with no compromise to safety.

There can be no doubt that safety is the key issue and challenge to routine access. The FAA is charged with the responsibility of ensuring the safety of the NAS. It must continue to impose restrictions on UAS access until a body of evidence is developed which proves that UASs are airworthy, can operate with an acceptable level of safety within the NAS, and do no harm to other users of the NAS or to the air traffic system. This body of evidence requires a combination of technology development, systems development, simulation, experimentation, flight demonstration and standards definition to guide the development of informed policies, rules, and regulations. The FAA has fully embraced the goal of integrating UASs safely into the NAS and has incorporated this objective into the Administrator's Flight Plan. To this end, the FAA has recently established a dedicated UAS program office. However, the FAA cannot do this job alone – nor can any other USG agency, nor can industry. The job requires multi-agency collaboration and a government/industry partnership.

The committee may well ask why it is so important to open the airspace to UAS operations now. Why not just let market forces and the regulatory process take their natural courses? Several near-term mission needs dictate the urgency of action. In fact, government agencies like Customs and Border Patrol are already deploying UASs into the NAS for border security. However, the DHS need for UAS operations for border protection cannot be achieved on a sustainable basis through continued proliferation of TFRs. With hurricane season just a few months away, FEMA may need expedited approval to fly UASs to support disaster mitigation and relief. While the military services conduct the bulk of their operational missions in the theatre of conflict, they have needs to conduct training missions in CONUS that require more routine flights in the NAS. Likewise, the National Guard has needs to operate missions within CONUS that are difficult to satisfy within the current basing plan. The demand for the use of UASs to satisfy national security and disaster response missions will continue to grow. Responding to this demand will require nationally coordinated action to ensure that the mission needs of all stakeholders can be satisfied expeditiously.

In addition, there are US aviation leadership issues driving the sense of urgency. The US has always been the leader in aviation technology and applications. This leadership position has contributed directly to US national security, economic growth, global commerce, and quality of life for its citizens. According to data in the "Century of Aviation Reauthorization Act," the "total impact of civil aviation on the United States economy exceeds $90 billion annually and accounts for 9 percent of the gross national

product and 11 million jobs in the national workforce." While even the most zealous UAS advocate will not claim similar contributions, a robust civil/commercial market for UASs within the next 15 years is quite feasible. On the military side, this growth potential is reflected in the latest QDR that identifies 45% of the strike force will be accomplished by unmanned aircraft.

This market potential has not gone unnoticed by Europe and other established and emerging aviation centers throughout the world. In Europe, the Framework Program (FP) is the European Union's (EU) main instrument for funding research and development, including activities related to airspace management and aerospace technology. UASs have received respectable funding (millions of Euros) under recent FPs, including FP5 (2005), FP6 (2006) and FP7 (2007).

As part of the FP5 activity, the EU launched a thematic network named UAVnet to advance UASs for civilian purposes. Under the Advisory Council for Aeronautics Research in Europe (ACARE), the funded intent is to produce "a world-class European aeronautics industry that leads in global markets for aircraft, engines and equipment" – and yes this includes UASs. The Eurocontrol SESAR (Single European Sky ATM Research) project has UAS activities embedded to harmonize rules for the operation of UASs in European airspace; and interoperability requirements for manned and unmanned civilian/military flight data exchange. The Innovative Future Air Transport System (IFATS) project, funded under FP6 links UAS technology to the next generation of "autonomous aircraft" and can be applied to the civilian, military and homeland security manned and unmanned markets.

The UK has realized that they need a national UAS program whereby government and industry can address the complex issues of flying UASs in controlled and uncontrolled civilian airspace. This program, "Autonomous Systems Technology Related Airborne Evaluation & Assessment (ASTRAE)" is a public, private partnership including their best minds from government, industry, academia, armed forces and regional development boards (state-like economic development teams). ASTRAE was launched in 2005 and is currently funded at approximately $50 million.

The ASTRAE program is similar in many respects to the NASA Access 5 Project. Three years ago, NASA leadership had the foresight to launch the Access 5 program to tackle many of the tough technology and procedural issues necessary to turn the vision of "file and fly" UAS access to the NAS into reality. The project acted as the catalyst for bringing all stakeholders together in a collaborative environment and received national and international acclaim as a model for effective government/industry partnership. Indeed, it was the model on which the European initiatives are now based. Unfortunately, due to a reshaping of NASA aeronautics direction, the Access 5 project was recently terminated. The US now lacks a similar mechanism for bringing government and industry together to work collaboratively on an integrated plan for achieving the important shared objective of safe and routine UAS operations in the NAS. The lack of an US integrating initiative, at the same time that Europe forges ahead with public-private initiatives raises concerns about sustained US leadership.

US industry is eager to ensure that it remains in a leadership position as the market for civil and commercial UASs starts to emerge and as the military use of UASs continues to grow. However, since industry cannot apply for COAs, it is currently disadvantaged by the inability to conduct industry-sponsored flight tests. FAA has responded by issuing two Experimental Certificates (ECs) that allow a single tail number of a UAS to operate under restricted conditions. While ECs are a great step forward, industry ultimately needs more flexible and timely flight test access to the NAS to operate within the short development cycles that are typical of UASs.

To summarize, there are urgent needs to operate UASs routinely in the NAS. Tight controls are placed on access to the NAS until evidence can be provided that UASs can operate with an acceptable level of safety within the NAS. This evidence requires the interaction of technology development, system development, safety analysis, simulation of UASs in the NAS and with ATC, flight tests and demonstrations, and certification standards. The evidence must form the basis for rules, regulations, and procedures that enable unique capabilities of unmanned systems while also ensuring that manned and unmanned systems can operate safely while sharing the same airspace and the same air traffic control system. There is work being done in all of these areas, but the work is not integrated through a single initiative. There is no single USG agency that has the charter, authority and expertise in all of these areas to take charge. Industry wants to be a partner in this endeavor, and is looking for a means to work effectively with all of the USG agencies and with Academia to achieve shared objectives.

To effectively deal with this urgent national need, UNITE makes the following recommendations:

First, develop a national initiative that aligns the interests of all stakeholders and defines a logical sequence of work to generate the evidence necessary to support policy and rulemaking decisions. The initiative should build on work accomplished to date. Short term emphasis is on ensuring that DoD and DHS can conduct critical missions and that industry can expeditiously flight test new products. Mid term focus should be on gaining safe and routine access to the NAS. And long term focus should be on the integration of UASs into the Next Generation Air Transportation System.

Second, define an organizational construct within which all relevant government agencies, industry and academia can participate in a collaborative environment, but in which one agency is assigned to lead and integrate the overall effort or each major element of the initiative.

Third, provide the federal funding necessary to implement the initiative through the designated lead agency or agencies.

Thank you once again for this opportunity. Industry looks forward to a participative relationship with government to solve this pressing national priority.